

SEQUENCE LISTING

<110> Bristol-Myers Squibb Company

<120> A NOVEL HUMAN LEUCINE-RICH REPEAT CONTAINING PROTEIN EXPRESSED
PREDOMINATELY IN BONE MARROW, HLRRBM1

<130> D0067NP

<150> US 60/257,773

<151> 2000-12-22

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<170> PatentIn version 3.0

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Pro Thr Glu Leu Leu Leu Asn Ser Leu Ile Arg Lys Lys Leu Leu Pro
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Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
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Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
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Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
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Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
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Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
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Ser

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Trp Glu Pro Ala His Pro Leu Val Leu Leu Ala Asn Leu Leu Ser Gly

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Lys	Leu	Leu	Lys	Gly	Ala	Ser	Lys	Leu	Leu	Thr	Ala	Arg	Thr	Gly	Ile
				325					330					335	
Glu	Val	Pro	Arg	Gln	Phe	Leu	Arg	Lys	Lys	Val	Leu	Leu	Arg	Gly	Phe
			340					345					350		
Ser	Pro	Ser	His	Leu	Arg	Ala	Tyr	Ala	Arg	Arg	Met	Phe	Pro	Glu	Arg
		355					360					365			
Ala	Leu	Gln	Asp	Arg	Leu	Leu	Ser	Gln	Leu	Glu	Ala	Asn	Pro	Asn	Leu
	370						375				380				
Cys	Ser	Leu	Cys	Ser	Val	Pro	Leu	Phe	Cys	Trp	Ile	Ile	Phe	Arg	Cys
385					390					395					400
Phe	Gln	His	Phe	Arg	Ala	Ala	Phe	Glu	Gly	Ser	Pro	Gln	Leu	Pro	Asp
				405					410					415	
Cys	Thr	Met	Thr	Leu	Thr	Asp	Val	Phe	Leu	Leu	Val	Thr	Glu	Val	His
			420					425					430		
Leu	Asn	Arg	Met	Gln	Pro	Ser	Ser	Leu	Val	Gln	Arg	Asn	Thr	Arg	Ser
		435					440					445			
Pro	Val	Glu	Thr	Leu	His	Ala	Gly	Arg	Asp	Thr	Leu	Cys	Ser	Leu	Gly
	450					455					460				
Gln	Val	Ala	His	Arg	Gly	Met	Glu	Lys	Ser	Leu	Phe	Val	Phe	Thr	Gln
465					470					475					480
Glu	Glu	Val	Gln	Ala	Ser	Gly	Leu	Gln	Glu	Arg	Asp	Met	Gln	Leu	Gly
			485						490					495	
Phe	Leu	Arg	Ala	Leu	Pro	Glu	Leu	Gly	Pro	Gly	Gly	Asp	Gln	Gln	Ser
			500					505					510		
Tyr	Glu	Phe	Phe	His	Leu	Thr	Leu	Gln	Ala	Phe	Phe	Thr	Ala	Phe	Phe
	515						520					525			
Leu	Val	Leu	Asp	Asp	Arg	Val	Gly	Thr	Gln	Glu	Leu	Leu	Arg	Phe	Phe
	530					535					540				
Gln	Glu	Trp	Met	Pro	Pro	Ala	Gly	Ala	Ala	Thr	Thr	Ser	Cys	Tyr	Pro
545					550					555					560
Pro	Phe	Leu	Pro	Phe	Gln	Cys	Leu	Gln	Gly	Ser	Gly	Pro	Ala	Arg	Glu
				565					570					575	
Asp	Leu	Phe	Lys	Asn	Lys	Asp	His	Phe	Gln	Phe	Thr	Asn	Leu	Phe	Leu
			580					585					590		
Cys	Gly	Leu	Leu	Ser	Lys	Ala	Lys	Gln	Lys	Leu	Leu	Arg	His	Leu	Val
	595						600					605			
Pro	Ala	Ala	Ala	Leu	Arg	Arg	Lys	Arg	Lys	Ala	Leu	Trp	Ala	His	Leu
	610					615					620				
Phe	Ser	Ser	Leu	Arg	Gly	Tyr	Leu	Lys	Ser	Leu	Pro	Arg	Val	Gln	Val
625					630					635					640

Glu	Ser	Phe	Asn	Gln	Val	Gln	Ala	Met	Pro	Thr	Phe	Ile	Trp	Met	Leu	
				645						650				655		
Arg	Cys	Ile	Tyr	Glu	Thr	Gln	Ser	Gln	Lys	Val	Gly	Gln	Leu	Ala	Ala	
				660				665					670			
Arg	Gly	Ile	Cys	Ala	Asn	Tyr	Leu	Lys	Leu	Thr	Tyr	Cys	Asn	Ala	Cys	
		675					680					685				
Ser	Ala	Asp	Cys	Ser	Ala	Leu	Ser	Phe	Val	Leu	His	His	Phe	Pro	Lys	
	690					695					700					
Arg	Leu	Ala	Leu	Asp	Leu	Asp	Asn	Asn	Asn	Leu	Asn	Asp	Tyr	Gly	Val	
705					710					715					720	
Arg	Glu	Leu	Gln	Pro	Cys	Phe	Ser	Arg	Leu	Thr	Val	Leu	Arg	Leu	Ser	
				725					730					735		
Val	Asn	Gln	Ile	Thr	Asp	Gly	Gly	Val	Lys	Val	Leu	Ser	Glu	Glu	Leu	
			740					745					750			
Thr	Lys	Tyr	Lys	Ile	Val	Thr	Tyr	Leu	Gly	Leu	Tyr	Asn	Asn	Gln	Ile	
		755						760				765				
Thr	Asp	Val	Gly	Ala	Arg	Tyr	Val	Thr	Lys	Ile	Leu	Asp	Glu	Cys	Lys	
	770					775					780					
Gly	Leu	Thr	His	Leu	Lys	Leu	Gly	Lys	Asn	Lys	Ile	Thr	Ser	Glu	Gly	
785					790					795					800	
Gly	Lys	Tyr	Leu	Ala	Leu	Ala	Val	Lys	Asn	Ser	Lys	Ser	Ile	Ser	Glu	
				805					810					815		
Val	Gly	Met	Trp	Gly	Asn	Gln	Val	Gly	Asp	Glu	Gly	Ala	Lys	Ala	Phe	
			820					825					830			
Ala	Glu	Ala	Leu	Arg	Asn	His	Pro	Ser	Leu	Thr	Thr	Leu	Ser	Leu	Ala	
		835					840					845				
Ser	Asn	Gly	Ile	Ser	Thr	Glu	Gly	Gly	Lys	Ser	Leu	Ala	Arg	Ala	Leu	
	850					855					860					
Gln	Gln	Asn	Thr	Ser	Leu	Glu	Ile	Leu	Trp	Leu	Thr	Gln	Asn	Glu	Leu	
865					870					875					880	
Asn	Asp	Glu	Val	Ala	Glu	Ser	Leu	Ala	Glu	Met	Leu	Lys	Val	Asn	Gln	
				885					890					895		
Thr	Leu	Lys	His	Leu	Trp	Leu	Ile	Gln	Asn	Gln	Ile	Thr	Ala	Lys	Gly	
			900					905					910			
Thr	Ala	Gln	Leu	Ala	Asp	Ala	Leu	Gln	Ser	Asn	Thr	Gly	Ile	Thr	Glu	
		915					920					925				
Ile	Cys	Leu	Asn	Gly	Asn	Leu	Ile	Lys	Pro	Glu	Glu	Ala	Lys	Val	Tyr	
	930					935					940					
Glu	Asp	Glu	Lys	Arg	Ile	Ile	Cys	Phe								
945					950											

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 <213> homo sapiens

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 cttcagttgc ttgtacgaga tccaggagga ggagtttata cagcaggccc tgagccactt 180
 ccaggtgatc gtggtcagca acattgcctc caagatggag cacatggtct cctcgttctg 240
 tctgatgcgc tgcaggagcg cccaggtggt gcacttgat ggcgccacct acagcgcgga 300
 cggggaag 308

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<400> 8
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 tccactgcaa caggtccatc 80

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<212> PRT

<213> homo sapiens

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Gly Leu Leu Arg Gln Thr Ser Arg Thr Thr Thr Ala Val
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<400> 12

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<211> 10

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Met Asn Gln Ser Ala Thr Glu Cys Ser Met
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<210> 14

<211> 514

<212> PRT

<213> homo sapiens

<400> 14

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20 25 30

Thr Ala Val Tyr Val Phe Phe Leu Ser Ser Leu Leu Gln Pro Arg Gly
35 40 45

Gly Ser Gln Glu His Gly Leu Cys Ala His Leu Trp Gly Leu Cys Ser
50 55 60

Leu Ala Ala Asp Gly Ile Trp Asn Gln Lys Ile Leu Phe Glu Glu Ser
65 70 75 80

Asp Leu Arg Asn His Gly Leu Gln Lys Ala Asp Val Ser Ala Phe Leu
85 90 95

Arg Met Asn Leu Phe Gln Lys Glu Val Asp Cys Glu Lys Phe Tyr Ser
 100 105 110
 Phe Ile His Met Thr Phe Gln Glu Phe Phe Ala Ala Met Tyr Tyr Leu
 115 120 125
 Leu Glu Glu Glu Lys Glu Gly Arg Thr Asn Val Pro Gly Ser Arg Leu
 130 135 140
 Lys Leu Pro Ser Arg Asp Val Thr Val Leu Leu Glu Asn Tyr Gly Lys
 145 150 155 160
 Phe Glu Lys Gly Tyr Leu Ile Phe Val Val Arg Phe Leu Phe Gly Leu
 165 170 175
 Val Asn Gln Glu Arg Thr Ser Tyr Leu Glu Lys Lys Leu Ser Cys Met
 180 185 190
 Ile Ser Gln Gln Ile Arg Leu Glu Leu Leu Lys Trp Ile Glu Val Lys
 195 200 205
 Ala Lys Ala Lys Lys Leu His Asp Gln Pro Ser Gln Leu Glu Leu Phe
 210 215 220
 Tyr Cys Leu Tyr Glu Met Gln Glu Glu Asp Phe Val Gln Arg Ala Met
 225 230 235 240
 Asp Tyr Phe Pro Lys Ile Glu Ile Asn Leu Ser Thr Arg Met Asp His
 245 250 255
 Met Val Ser Ser Phe Cys Ile Glu Asn Cys His Arg Val Glu Ser Leu
 260 265 270
 Ser Leu Gly Phe Leu His Asn Met Pro Lys Glu Glu Glu Glu Glu Glu
 275 280 285
 Lys Glu Gly Arg His Leu Asp Met Val Gln Cys Val Leu Pro Ser Ser
 290 295 300
 Ser His Ala Ala Cys Ser His Gly Leu Gly Arg Cys Gly Leu Ser His
 305 310 315 320
 Glu Cys Cys Phe Asp Ile Ser Leu Val Leu Ser Ser Asn Gln Lys Leu
 325 330 335
 Val Glu Leu Asp Leu Ser Asp Asn Ala Leu Gly Asp Phe Gly Ile Arg
 340 345 350
 Leu Leu Cys Val Gly Leu Lys His Leu Leu Cys Asn Leu Lys Lys Leu
 355 360 365
 Trp Leu Val Asn Ser Ala Leu Arg Gln Ser Val Val Gln Leu Cys Pro
 370 375 380
 Arg Tyr Ser Ala Leu Ile Arg Ile Ser Arg Thr Phe Thr Ala Arg Gln
 385 390 395 400
 His Ser Arg Arg Gln Gly Ile Lys Leu Leu Cys Glu Gly Leu Leu His
 405 410 415

Pro Asp Cys Lys Leu Gln Val Leu Glu Leu Asp Asn Cys Asn Leu Thr
420 425 430

Ser His Cys Cys Trp Asp Leu Ser Thr Leu Leu Thr Ser Ser Gln Ser
435 440 445

Leu Arg Lys Leu Ser Leu Gly Asn Asn Asp Leu Gly Asp Leu Gly Val
450 455 460

Met Met Phe Cys Glu Val Leu Lys Gln Gln Ser Cys Leu Leu Gln Asn
465 470 475 480

Leu Gly Leu Ser Glu Met Tyr Phe Asn Tyr Glu Thr Lys Ser Ala Leu
485 490 495

Glu Thr Leu Gln Glu Glu Lys Pro Glu Leu Thr Val Val Phe Glu Pro
500 505 510

Ser Trp

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<211> 1429
<212> PRT
<213> homo sapiens
<400> 15

Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu
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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
 180 185 190
 Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
 195 200 205
 Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
 210 215 220
 Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
 225 230 235 240
 Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
 245 250 255
 Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
 260 265 270
 Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
 275 280 285
 Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
 290 295 300
 Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
 305 310 315 320
 Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
 325 330 335
 Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
 340 345 350
 Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
 355 360 365
 Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
 370 375 380
 Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
 385 390 395 400
 Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
 405 410 415
 Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
 420 425 430
 Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
 435 440 445
 Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
 450 455 460
 Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
 465 470 475 480
 Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
 485 490 495
 Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
 835 840 845
 Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
 850 855 860
 Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
 865 870 875 880
 Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
 885 890 895
 Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
 900 905 910
 Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
 915 920 925
 Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
 930 935 940
 Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln
 945 950 955 960
 Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
 965 970 975
 Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met
 980 985 990
 Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser
 995 1000 1005
 Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His
 1010 1015 1020
 Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
 1025 1030 1035
 Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro
 1040 1045 1050
 Val Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu
 1055 1060 1065
 His Thr Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr
 1070 1075 1080
 Gly Pro Val Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr
 1085 1090 1095
 Arg Val His Phe Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr
 1100 1105 1110
 Gly Leu Cys Phe Val Met Arg Glu Ala Val Thr Val Glu Ile Glu
 1115 1120 1125
 Phe Cys Val Trp Asp Gln Phe Leu Gly Glu Ile Asn Pro Gln His
 1130 1135 1140

Ser	Trp	Met	Val	Ala	Gly	Pro	Leu	Leu	Asp	Ile	Lys	Ala	Glu	Pro
1145						1150					1155			
Gly	Ala	Val	Glu	Ala	Val	His	Leu	Pro	His	Phe	Val	Ala	Leu	Gln
1160						1165					1170			
Gly	Gly	His	Val	Asp	Thr	Ser	Leu	Phe	Gln	Met	Ala	His	Phe	Lys
1175						1180					1185			
Glu	Glu	Gly	Met	Leu	Leu	Glu	Lys	Pro	Ala	Arg	Val	Glu	Leu	His
1190						1195					1200			
His	Ile	Val	Leu	Glu	Asn	Pro	Ser	Phe	Ser	Pro	Leu	Gly	Val	Leu
1205						1210					1215			
Leu	Lys	Met	Ile	His	Asn	Ala	Leu	Arg	Phe	Ile	Pro	Val	Thr	Ser
1220						1225					1230			
Val	Val	Leu	Leu	Tyr	His	Arg	Val	His	Pro	Glu	Glu	Val	Thr	Phe
1235						1240					1245			
His	Leu	Tyr	Leu	Ile	Pro	Ser	Asp	Cys	Ser	Ile	Arg	Lys	Glu	Leu
1250						1255					1260			
Glu	Leu	Cys	Tyr	Arg	Ser	Pro	Gly	Glu	Asp	Gln	Leu	Phe	Ser	Glu
1265						1270					1275			
Phe	Tyr	Val	Gly	His	Leu	Gly	Ser	Gly	Ile	Arg	Leu	Gln	Val	Lys
1280						1285					1290			
Asp	Lys	Lys	Asp	Glu	Thr	Leu	Val	Trp	Glu	Ala	Leu	Val	Lys	Pro
1295						1300					1305			
Gly	Asp	Leu	Met	Pro	Ala	Thr	Thr	Leu	Ile	Pro	Pro	Ala	Arg	Ile
1310						1315					1320			
Ala	Val	Pro	Ser	Pro	Leu	Asp	Ala	Pro	Gln	Leu	Leu	His	Phe	Val
1325						1330					1335			
Asp	Gln	Tyr	Arg	Glu	Gln	Leu	Ile	Ala	Arg	Val	Thr	Ser	Val	Glu
1340						1345					1350			
Val	Val	Leu	Asp	Lys	Leu	His	Gly	Gln	Val	Leu	Ser	Gln	Glu	Gln
1355						1360					1365			
Tyr	Glu	Arg	Val	Leu	Ala	Glu	Asn	Thr	Arg	Pro	Ser	Gln	Met	Arg
1370						1375					1380			
Lys	Leu	Phe	Ser	Leu	Ser	Gln	Ser	Trp	Asp	Arg	Lys	Cys	Lys	Asp
1385						1390					1395			
Gly	Leu	Tyr	Gln	Ala	Leu	Lys	Glu	Thr	His	Pro	His	Leu	Ile	Met
1400						1405					1410			
Glu	Leu	Trp	Glu	Lys	Gly	Ser	Lys	Lys	Gly	Leu	Leu	Pro	Leu	Ser
1415						1420					1425			

Ser

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<400> 16

Asp Tyr Lys Asp Asp Asp Asp Lys
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 <211> 733
 <212> DNA
 <213> homo sapiens

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 tctcccgga tcttgaggtc acatgcgtgg tggaggacgt aagccacgaa gaccctgagg 180
 tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240
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 agaaaacat ctcaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420
 catcccgga tgagctgacc aagaaccagg tcagcctgac ctgcctgggc aaaggcttct 480
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 acaagagcag gtggcagcag gggaacgtct tctcatgtct cgtgatgcat gaggctctgc 660
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 gactctagag gat 733

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 <212> PRT
 <213> Homo sapiens

<400> 18

Met Ala Ser Thr Arg Cys Lys Leu Ala Arg Tyr Leu Glu Asp Leu Glu
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Asp Val Asp Leu Lys Lys Phe Lys Met His Leu Glu Asp Tyr Pro Pro
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Gln Lys Gly Cys Ile Pro Leu Pro Arg Gly Gln Thr Glu Lys Ala Asp
 35 40 45

His Val Asp Leu Ala Thr Leu Met Ile Asp Phe Asn Gly Glu Glu Lys
 50 55 60

Ala Trp Ala Met Ala Val Trp Ile Phe Ala Ala Ile Asn Arg Arg Asp
 65 70 75 80
 Leu Tyr Glu Lys Ala Lys Arg Asp Glu Pro Lys Trp Gly Ser Asp Asn
 85 90 95
 Ala Arg Val Ser Asn Pro Thr Val Ile Cys Gln Glu Asp Ser Ile Glu
 100 105 110
 Glu Glu Trp Met Gly Leu Leu Glu Tyr Leu Ser Arg Ile Ser Ile Cys
 115 120 125
 Lys Met Lys Lys Asp Tyr Arg Lys Lys Tyr Arg Lys Tyr Val Arg Ser
 130 135 140
 Arg Phe Gln Cys Ile Glu Asp Arg Asn Ala Arg Leu Gly Glu Ser Val
 145 150 155 160
 Ser Leu Asn Lys Arg Tyr Thr Arg Leu Arg Leu Ile Lys Glu His Arg
 165 170 175
 Ser Gln Gln Glu Arg Glu Gln Glu Leu Leu Ala Ile Gly Lys Thr Lys
 180 185 190
 Thr Cys Glu Ser Pro Val Ser Pro Ile Lys Met Glu Leu Leu Phe Asp
 195 200 205
 Pro Asp Asp Glu His Ser Glu Pro Val His Thr Val Val Phe Gln Gly
 210 215 220
 Ala Ala Gly Ile Gly Lys Thr Ile Leu Ala Arg Lys Met Met Leu Asp
 225 230 235 240
 Trp Ala Ser Gly Thr Leu Tyr Gln Asp Arg Phe Asp Tyr Leu Phe Tyr
 245 250 255
 Ile His Cys Arg Glu Val Ser Leu Val Thr Gln Arg Ser Leu Gly Asp
 260 265 270
 Leu Ile Met Ser Cys Cys Pro Asp Pro Asn Pro Pro Ile His Lys Ile
 275 280 285
 Val Arg Lys Pro Ser Arg Ile Leu Phe Leu Met Asp Gly Phe Asp Glu
 290 295 300
 Leu Gln Gly Ala Phe Asp Glu His Ile Gly Pro Leu Cys Thr Asp Trp
 305 310 315 320
 Gln Lys Ala Glu Arg Gly Asp Ile Leu Leu Ser Ser Leu Ile Arg Lys
 325 330 335
 Lys Leu Leu Pro Glu Ala Ser Leu Leu Ile Thr Thr Arg Pro Val Ala
 340 345 350
 Leu Glu Lys Leu Gln His Leu Leu Asp His Pro Arg His Val Glu Ile
 355 360 365
 Leu Gly Phe Ser Glu Ala Lys Arg Lys Glu Tyr Phe Phe Lys Tyr Phe
 370 375 380
 Ser Asp Glu Ala Gln Ala Arg Ala Ala Phe Ser Leu Ile Gln Glu Asn

385		390		395		400
Glu Val Leu Phe Thr Met Cys Phe Ile Pro Leu Val Cys Trp Ile Val						
	405			410		415
Cys Thr Gly Leu Lys Gln Gln Met Glu Ser Gly Lys Ser Leu Ala Gln						
	420			425		430
Thr Ser Lys Thr Thr Thr Ala Val Tyr Val Phe Phe Leu Ser Ser Leu						
	435			440		445
Leu Gln Pro Arg Gly Gly Ser Gln Glu His Gly Leu Cys Ala His Leu						
	450			455		460
Trp Gly Leu Cys Ser Leu Ala Ala Asp Gly Ile Trp Asn Gln Lys Ile						
	465			470		480
Leu Phe Glu Glu Ser Asp Leu Arg Asn His Gly Leu Gln Lys Ala Asp						
		485		490		495
Val Ser Ala Phe Leu Arg Met Asn Leu Phe Gln Lys Glu Val Asp Cys						
	500			505		510
Glu Lys Phe Tyr Ser Phe Ile His Met Thr Phe Gln Glu Phe Phe Ala						
	515			520		525
Ala Met Tyr Tyr Leu Leu Glu Glu Glu Lys Glu Gly Arg Thr Asn Val						
	530			535		540
Pro Gly Ser Arg Leu Lys Leu Pro Ser Arg Asp Val Thr Val Leu Leu						
	545			550		555
Glu Asn Tyr Gly Lys Phe Glu Lys Gly Tyr Leu Ile Phe Val Val Arg						
		565		570		575
Phe Leu Phe Gly Leu Val Asn Gln Glu Arg Thr Ser Tyr Leu Glu Lys						
		580		585		590
Lys Leu Ser Cys Lys Ile Ser Gln Gln Ile Arg Leu Glu Leu Leu Lys						
	595			600		605
Trp Ile Glu Val Lys Ala Lys Ala Lys Lys Leu Gln Ile Gln Pro Ser						
	610			615		620
Gln Leu Glu Leu Phe Tyr Cys Leu Tyr Glu Met Gln Glu Glu Asp Phe						
	625			630		635
Val Gln Arg Ala Met Asp Tyr Phe Pro Lys Ile Glu Ile Asn Leu Ser						
		645		650		655
Thr Arg Met Asp His Met Val Ser Ser Phe Cys Ile Glu Asn Cys His						
	660			665		670
Arg Val Glu Ser Leu Ser Leu Gly Phe Leu His Asn Met Pro Lys Glu						
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Glu Glu Glu Glu Glu Lys Glu Gly Arg His Leu Asp Met Val Gln Cys						
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Val Leu Pro Ser Ser Ser His Ala Ala Cys Ser His Gly Leu Val Asn						
	705			710		715
						720

Ser His Leu Thr Ser Ser Phe Cys Arg Gly Leu Phe Ser Val Leu Ser
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 Thr Ser Gln Ser Leu Thr Glu Leu Asp Leu Ser Asp Asn Ser Leu Gly
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 Asp Pro Gly Met Arg Val Leu Cys Glu Thr Leu Gln His Pro Gly Cys
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 Asn Ile Arg Arg Leu Trp Leu Gly Arg Cys Gly Leu Ser His Glu Cys
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 Cys Phe Asp Ile Ser Leu Val Leu Ser Ser Asn Gln Lys Leu Val Glu
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 Leu Asp Leu Ser Asp Asn Ala Leu Gly Asp Phe Gly Ile Arg Leu Leu
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 Cys Val Gly Leu Lys His Leu Leu Cys Asn Leu Lys Lys Leu Trp Leu
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 Val Ser Cys Cys Leu Thr Ser Ala Cys Cys Gln Asp Leu Ala Ser Val
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 Leu Ser Thr Ser His Ser Leu Thr Arg Leu Tyr Val Gly Glu Asn Ala
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 Gln Cys Asn Leu Gln Lys Leu Gly Leu Val Asn Ser Gly Leu Thr Ser
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 Val Cys Cys Ser Ala Leu Ser Ser Val Leu Ser Thr Asn Gln Asn Leu
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 Thr His Leu Tyr Leu Arg Gly Asn Thr Leu Gly Asp Lys Gly Ile Lys
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